



## “FRAPPY” {Free Response AP Problem...Yay!}

The following problem is taken from an actual Advanced Placement Statistics Examination. Your task is to generate a complete, concise statistical response in 15 minutes. You will be graded based on the AP rubric and will earn a score of 0-4. After grading, keep this problem in your binder for your AP Exam preparation.

A simple random sample of adults living in a suburb of a large city was selected. The age and annual income of each adult in the sample were recorded. The resulting data are summarized in the table below.

Age Category	Annual Income			Total
	\$25,000-\$35,000	\$35,001-\$50,000	Over \$50,000	
21-30	8	15	27	50
31-45	22	32	35	89
46-60	12	14	27	53
Over 60	5	3	7	15
Total	47	64	96	207

### Scoring:

(a) What is the probability that a person chosen at random from those in this sample will be in the 31-45 age category?

**E I**

(b) What is the probability that a person chosen at random from those in this sample whose incomes are over \$50,000 will be in the 31-45 category? Show your work.

**E P I**

(c) Based on your answers to parts (a) and (b), is annual income independent of age category for those in this sample? Explain.

**E P I**

**Total: \_\_/4**